Manitoba
Building for the Future

Guidelines For Estimating

Swine Hoop Shelter Finishing Costs

Based on marketing 11,527 pigs sold from 17 shelters

anitoba Agriculture and Food - Information Update **www.gov.mb.ca/agriculture/**

Date: February, 2003

This publication is intended to provide a format and a set of guidelines for determining the costs of production of a hoop shelter housing system for a finishing (23-113 kg) enterprise. The numbers are estimates of production costs and not figures obtained from an actual survey of the pork production industry in Manitoba. The assumptions on which the costs are based are outlined in the supporting pages. These assumptions were arrived at using the management practices, and facilities seen in modern, well-managed hoop shelter swine operations of comparable size in Manitoba. Productivity and performance assumptions are based on information collected by department specialists, feed companies and other organizations. Adjustments will be necessary where individual productivity and performance levels differ from those listed.

A hoop shelter is a Quonset-shaped building with sidewalls made from wood planks and posts. Steel arches are fastened to the posts to form a hooped roof, which is covered by a UV resistant tarp (See Figure 1, Page 15). Most hoop structures have a deep-bedded earthen floor except for a concrete pad section containing the feed bin and waterer (See Figure 2, Page 15). These naturally ventilated structures are often sited in an east-west orientation in Manitoba to take advantage of our prevailing wind conditions.

Hoop shelters have been used for several years in Manitoba and have potential benefits for pigs and producers including: 1) they are low capital (fixed) cost facilities; 2) they are flexible, practical and can be used or adapted for other purposes; 3) hoop shelters provide an environment for pigs with bedding (usually straw) and allow for group interactions among pigs, and; 4) hoop shelters provide a working environment with lower levels of manure gases and a solid (straw based) manure handling system.

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user. If you require assistance with developing your individual budget, please contact your local Manitoba Agriculture and Food office.

-15396

Swine Hoop Shelter Finishing Cost of Production

The following 23-113 kg budget is based on the assumption that all feed rations are purchased. The budget also includes a land investment cost based on the assumption that 160 acres would be required for this size operation, with 140 acres rented out at $25 per acre.

The budget includes an assumption that 1.5% of the market pigs are sold as lightweight pigs. It is assumed that when the lightweight pigs are sold, they will have a salvage value. Therefore, total marketing's are reduced by 1% to compensate for the lightweight pigs.

The budget also includes an assumption that this particular hoop shelter operation is "all-in, all-out" by shelter. Each shelter is designed to house 250 growing/finishing pigs. The budget includes an assumption that five hundred (500) pigs will be delivered on site every two weeks. This will provide enough 23-kg pigs to fill two shelters at a time. Marketing of pigs will also be completed on a two to three week schedule. Once the market pigs are all removed from a shelter, the manure pack is cleaned out and the shelter is re-strawed with 12 to 15 large (700 kg) round or square bales. A producer can expect to finish three batches (cycles) of pigs per year per hoop shelter.

The suggested space allocation for finishing pigs in a hoop shelter is 1.1 square metres (12 square feet) per pig.

The rations illustrated in this budget are examples only. Individual farm conditions should be taken into account when formulating the diets. Producers need to know the feed intakes of their animals. Pigs will consume approximately 10% more feed in a hoop shelter than in a confinement system during the winter (1 batch), whereas feed intakes will be approximately the same as in a confinement system for the remainder of the year (2 batches). Please consult with a nutritionist for diet information suggestions.

The Manitoba pork production industry profile is changing and this budget was specifically designed to address the need of producers who may want to analyze the cost of starting up or switching to a hoop shelter 23-113 kg finishing operation. Several companies are offering contracts with varying levels of guarantees. Producers need to accurately calculate their costs before they can properly make a decision.

103-03538/

Swine Hoop Shelter Finishing Costs Summary
February, 2003

	$/Pig Sold	Total Cost	Your Cost
A. Operating Costs			
1. Feed Costs:			
1.01 Starter	$21.56	$248,508	
1.02 Grower	$25.39	$292,608	
1.03 Finisher	$30.55	$352,123	
Total Feed Cost	**$77.49**	**$893,239**	
2. Other Operating Costs:			
2.01 Weanling Cost	$55.18	$636,036	
2.02 Straw	$2.48	$28,543	
2.03 Veterinary Medicine & Supplies	$1.65	$19,000	
2.04 Maintenance & Repairs	$0.32	$3,688	
2.05 Hydro & Propane	$0.09	$1,000	
2.06 Insurance	$0.53	$6,165	
2.07 Manure Costs	$2.60	$30,000	
2.08 Office Supplies	$0.10	$1,185	
2.09 Marketing & Transport	$6.56	$75,614	
2.10 Property Tax	$0.09	$1,000	
Subtotal Operating Costs	$147.09	$1,695,470	
2.11 Interest on Operating Costs	$2.03	$23,379	
Total Operating Costs	**$149.12**	**$1,718,849**	
B. Fixed Costs			
3. Depreciation:			
3.01 Buildings & Manure Storage	$2.18	$25,124	
3.02 Equipment	$0.65	$7,484	
Total Depreciation Cost	**$2.83**	**$32,608**	
4. Investment:			
4.01 Land	$0.14	$1,600	
4.02 Buildings & Manure Storage	$0.44	$5,025	
4.03 Equipment	$0.16	$1,848	
Total Investment Cost	**$0.74**	**$6,873**	
Total Fixed Costs	**$3.56**	**$39,481**	
C. Labour			
Wages, benefits and hired manager	$3.57	$41,184	
Total Cost of Production	**$156.26**	**$1,799,514**	
Break-Even Price (carcass) [1]	**$/100 kg**	**$/cwt**	
Operating Cost	$152.74	$69.28	
Operating & Labour Cost	$156.40	$70.94	
Operating, Labour & Fixed Cost	$160.05	$72.60	

[1] Break-even Price = Cost per Hog Sold ÷ (Slaughter Weight x Dressing Percentage x Index)

Disclaimer: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user.

Swine Hoop Shelter Finishing Production Cost Assumptions

1. This input table outlines the cost of production for a finishing enterprise.
2. Buildings and equipment are valued at new cost.
3. Purchased feed is used.
4. Manure haulage is contracted out.
5. Livestock values are based on a market price for pork of:

	$150.00	/100 kg	**108**	Market Index
or:	$0.68	/lb	**80**	% Dress

Indicators of Productivity

	Starter	Grower	Finish	Total
Number of Pigs Purchased Annually	**12000**	11880	11761	12000
Average Beginning Weight (kg)	**23**	50	80	23
Average Ending Weight (kg)	**50**	**80**	**113**	113
Percent Mortality	**1.0**	**1.0**	**1.0**	3.0
Days on Feed	**36**	**30**	**45**	111
Feed Conversion Ratio	**2.60**	**3.20**	**3.60**	3.17
Number of Pigs (Ending)	11880	11761	11643	11643
Weight Gain/Pig (kg)	27.0	30.0	33.0	90.0
Feed Disappearance/Pig (kg)	70.2	96.0	118.8	285.0
Average Daily Gain (kg)	0.750	1.000	0.733	0.811
Average Number Pigs in Shelters	3991	3951	3911	3951

Productivity Profile

	Total		
Pigs Purchased	12,000		
Pigs Died	360	3.0	% mortality
Pigs available for marketing	11,643		
Less Light Weight Pig Adjustment	116	**1.00**	%
Pigs Sold at full market value	11,527		
Washing and restocking days	**11**		
Total Days to Market	122		
Turnover (365 / days to market)	2.99		
Pigs per shelter	**250**		
Shelters required (1 extra for overflows)	17		

Feed Requirements and Costs

			Ration Cost		
	FCR *	kg/pig	Purchased	Home-Mixed	
Starter Ration	2.60	70.2	**$295.00**	$0.00	/tonne
Grower Ration	3.20	96.0	**$254.00**	$0.00	/tonne
Finisher Ration	3.60	118.8	**$247.00**	$0.00	/tonne

*** FCR = Feed Conversion Ratio (Feed:Gain)**

Labour

Total Hours per year	**66.0**	hours/week	3,432	hours/year
Wage (includes hired manager)	**$12.00**	/hour		

Capital Investment[1]

Based on 4,000 **Pig Places**

			Total	/Pig Place	Your Cost
Buildings					
Shelters	**17** @	**$14,308**	$243,236	$60.81	
Office & Loading	**200** ft.^{2}	**$25.00**	$5,000	$1.25	
Standby Generator			$3,000	$0.75	
Feed Mill (building only)			**$0**	$0.00	
Total Building Cost			**$251,236**	**$62.81**	
Equipment					
Skid Steer loader			$20,000	$5.00	
Tractor			$50,000	$12.50	
Snow Blower			$3,000	$0.75	
Auto sorter (2 @ $5,500)			$11,000	$2.75	
Storage Bins			$0	$0.00	
Feed Mill (equipment only)			**$0**	$0.00	
Total Equipment Cost			**$84,000**	**$21.00**	
Total Buildings and Equipment Cost			**$335,236**	**$83.81**	
Land Value					
Land Investment	20 acres @	$500	**$10,000**	**$2.50**	
Rental Income					
Other Costs					
Site preparation (includes manure storage)			**$30,000**	$7.50	
Manure Storage			**$0**	$0.00	
Total Other Costs			**$30,000**	**$7.50**	
Total Capital Investment			**$375,236**	**$93.81**	

Feed Ingredient Costs

	Price/tonne	Your Cost
Barley	$190	_____
Corn	$162	_____
Canola Meal - 36 %	$300	_____
Soybean Meal - 47 %	$225	_____
Peas	$225	_____
Creep Premix	$850	_____
Sow Mico Premix	$3,000	_____
Grower Micro Premix	$2,500	_____
Canola Oil	$500	_____
Herring Meal	$1,400	_____
Plasma	$7,500	_____
Limestone	$80	_____
Dical (16% Ca-21% P)	$470	_____
Salt - 96%	$98	_____
L-Lysine HCL	$2,700	_____
L-Threonine	$6,400	_____
DL-Methionine	$4,500	
Oats Steam Rolled	$400	
Processing Cost (Hydro, Repairs/Maintenance & Insurance)	$3.25	_____
Percent Weight loss due to processing	1.25 %	_____
Labour Cost	$4.00	_____

Feed Requirement and Cost Summary

Starter	Amount (kg)	Ingredient Price ($ /tonne)	Ration Cost ($ /tonne)	Your Cost
Barley	248.09	$190.00	$47.14	
Corn	343.88	$162.00	$55.71	
Canola Meal - 36 %	116.51	$300.00	$34.95	
Soybean Meal - 47 %	15.92	$225.00	$3.58	
Peas	251.36	$225.00	$56.56	
Grower Micro Premix	3.00	$2,500.00	$7.50	
Limestone	12.41	$80.00	$0.99	
Dical (16% Ca-21% P)	4.85	$470.00	$2.28	
Salt - 96%	3.50	$98.00	$0.34	
L-Lysine HCL	0.26	$2,700.00	$0.70	
L-Threonine	0.09	$6,400.00	$0.58	
DL-Methionine	0.13	$4,500.00	$0.59	
Total Starter	**1,000.00 kg**		**$210.92**	
Adjusted For Weight Loss		1.25 %	$213.56	
Plus Processing Cost		$3.25	$216.81	
Plus Labour Cost		$4.00	**$220.81**	
Grower				
Barley	178.49	$190.00	$33.91	
Corn	405.64	$162.00	$65.71	
Canola Meal - 36 %	69.48	$300.00	$20.84	
Soybean Meal - 47 %	27.35	$225.00	$6.15	
Peas	295.29	$225.00	$66.44	
Grower Micro Premix	3.00	$2,500.00	$7.50	
Limestone	11.81	$80.00	$0.94	
Dical (16% Ca-21% P)	5.38	$470.00	$2.53	
Salt - 96%	3.50	$98.00	$0.34	
L-Lysine HCL	0.03	$2,700.00	$0.08	
L-Threonine	0.00	$6,400.00	$0.00	
DL-Methionine	0.03	$4,500.00	$0.14	
Total Grower	**1,000.00 kg**		**$204.58**	
Adjusted For Weight Loss		1.25 %	$207.14	
Plus Processing Cost		$3.25	$210.39	
Plus Labour Cost		$4.00	**$214.39**	

Finisher				
Barley	437.72	$190.00	$83.17	_____
Corn	173.79	$162.00	$28.15	_____
Canola Meal - 36 %	4.65	$300.00	$1.40	_____
Soybean Meal - 47 %	0.00	$225.00	$0.00	_____
Peas	363.85	$225.00	$81.87	_____
Grower Micro Premix	3.00	$2,500.00	$7.50	_____
Limestone	10.48	$80.00	$0.84	_____
Dical (16% Ca-21% P)	2.85	$470.00	$1.34	_____
Salt - 96%	3.50	$98.00	$0.34	_____
L-Lysine HCL	0.00	$2,700.00	$0.00	_____
L-Threonine	0.02	$6,400.00	$0.13	_____
DL-Methionine	0.14	$4,500.00	$0.63	_____
Total Finish	**1,000.00 kg**		**$205.37**	_____
Adjusted For Weight Loss		1.25 %	$207.94	_____
Plus Processing Cost		$3.25	$211.19	_____
Plus Labour Cost		$4.00	**$215.19**	_____

Swine Hoop Structure Finishing Production Cost Worksheet

A. Operating Costs **Your Cost**

1. Feed Requirements and Costs

1.01 Starter

	27.0	weight gain/pig	
x	2.6	feed conversion ratio	
=	70.2	kg ration/pig	
x	$295.00	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$21.56**	**/pig sold**	

1.02 Grower

	30.0	weight gain/pig	
x	3.2	feed conversion ratio	
=	96.0	kg ration/pig	
x	$254.00	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$25.39**	**/pig sold**	

1.03 Finisher

	33.0	weight gain/pig	
x	3.6	feed conversion ratio	
=	118.8	kg ration/pig	
x	$247.00	/tonne ration	
÷	1,000	kg/tonne	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$30.55**	**/pig sold**	

2. Other Operating Costs

2.01 Weanling Cost

	$60.00	market price	
÷	100	lbs/cwt	
x	1.7	formula factor	
x	50	lbs	
+	$2.00	trucking cost	
x	12,000	weanlings purchased	
÷	11,527	pigs sold	
=	**$55.18**	**/pig sold**	

2.02 Straw

	12,000	number of pigs
	111	days on feed
	1.0	kg straw/pig/day
	$15.00	per bale
	700	kg/bale
	11,527	pigs sold
	$2.48	**/pig sold**

2.03 Veterinary Cost

	$1,000	professional services
+	$18,000	medication
÷	11,527	pigs sold
=	**$1.65**	**/pig sold**

2.04 Maintenance & Repairs

	1.10	% of total capital investment
x	$335,236	total buildings and equipment cost
÷	11,527	pigs sold
=	**$0.32**	**/pig sold**

2.05 Utilities

	$1,000	hydro
+	$0	propane
÷	11,527	pigs sold
=	**$0.09**	**/pig sold**

2.06 Insurance

	$335,236	buildings & equipment
x	$0.46	/$100
÷	100	/$100 capital
÷	11,527	pigs sold
=	$0.13	/pig sold
	3,951	average # pigs in shelters
x	$140.00	average value
x	$0.65	/$100
÷	100	/$100 capital
÷	11,527	pigs sold
=	$0.31	/pig sold
	$40.00	insured value
x	3,951	average number in barn
x	$0.65	rate /$100
÷	11,527	pigs sold
=	$0.09	/pig sold
=	**$0.53**	**/pig sold**

2.07 Manure Costs

	$30,000	annual cost
÷	11,527	pigs sold
=	**$2.60**	**/pig sold**

2.08 Office Supplies

	$0.30	/pig place
x	3,951	pig places
÷	11,527	pigs sold
=	**$0.10**	**/pig sold**

2.09 Marketing & Transportation

	$2.00	trucking-in
+	$2.80	trucking-out
+	$0.85	council levy
+	$0.04	grading charge
+	$0.17	insurance
+	$0.70	brokerage fee
=	**$6.56**	**/pig sold**

2.10 Property Taxes

	$1,000	taxes
÷	11,527	pigs sold
=	**$0.09**	**/pig sold**

2.11 Interest on Operating Cost

	$55.18	weaner cost
x	122	total days to market
x	6.0	% operating rate
÷	365	days/year
=	$1.11	/pig sold

	$147.09	subtotal operating cost
-	$55.18	weaner cost
÷	2	average
x	122	total days to market
÷	365	days/year
x	6.00	% operating rate
=	$0.92	/pig sold
=	**$2.03**	**/pig sold**

B. Fixed Costs

3. Depreciation

$$\frac{\text{Original cost - Salvage Value}}{\text{Useful Life}}$$

3.01 Buildings

	$251,236	total cost	
-	$0	salvage value	
÷	10	years useful life	
÷	11,527	pigs sold	
=	**$2.18**	**/pig sold**	

3.02 Equipment

	$84,000.00	total equipment cost	
-	$8,400.00	salvage value	
÷	10	years useful life	
÷	11,527	pigs sold	
=	**$0.65**	**/pig sold**	

4. Investment Cost

$$\frac{\text{(Original Cost + Salvage Value)}}{2} \text{ X Investment Rate}$$

4.01 Land

	$10,000	land investment	
+	$30,000	site preparation	
x	4.00	% investment rate	
÷	11,527	pigs sold	
=	**$0.14**	**/pig sold**	

4.02 Buildings

	$251,236	total cost	
	$0	salvage value	
+	2	average	
÷	4.00	% investment rate	
x	11,527	pigs sold	
+	**$0.44**	**/pig sold**	
=			

4.03 Equipment

	$84,000	total equipment cost
	$8,400	salvage value
+	2	average
÷	4.00	% investment rate
x	11,527	pigs sold
÷	**$0.16**	**/pig sold**
=		

C. Labour Cost

	3432	total hours/year
	$12.00	/hour
x	11,527	pigs sold
÷	**$3.57**	**/pig sold**
=		

Summary of Purchased Feeds Used

11,643 Pigs available for marketing (includes lightweights)

	Total per Pig Mkt (kgs)	Total per Year (tonnes)	Total per Month (tonnes)	Total per Pig Mkt (lbs)
Starter	70.20	817.34	68.11	154.76
Grower	96.00	1,117.73	93.14	211.64
Finisher	118.80	1,383.19	115.27	261.91
Total	**285.00**	**3,318.26**	**276.52**	**628.31**

Summary of Home Mixed Feed Ingredients Used

	Total per Pig (kgs)	Total per Year (tonnes)	Total per Month (tonnes)	Total per Pig (lbs)
Barley	0.00	0.00	0.00	0.00
Corn	0.00	0.00	0.00	0.00
Canola Meal - 36 %	0.00	0.00	0.00	0.00
Soybean Meal - 47 %	0.00	0.00	0.00	0.00
Peas	0.00	0.00	0.00	0.00
Grower Micro Premix	0.00	0.00	0.00	0.00
Limestone	0.00	0.00	0.00	0.00
Dical (16% Ca-21% P)	0.00	0.00	0.00	0.00
Salt - 96%	0.00	0.00	0.00	0.00
L-Lysine HCL	0.00	0.00	0.00	0.00
L-Threonine	0.00	0.00	0.00	0.00
DL-Methionine	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**

For further information contact your local Manitoba Agriculture and Food office.

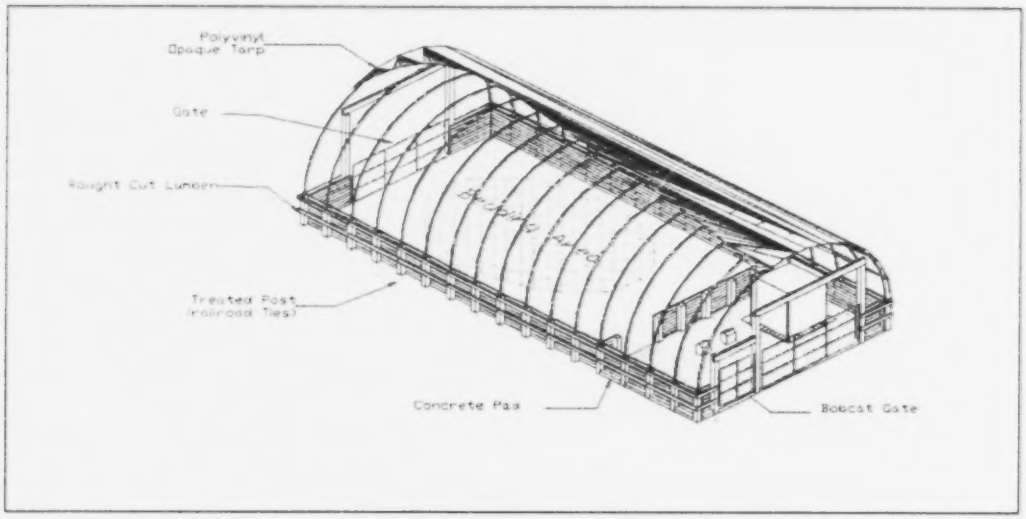
Prepared by:
Peter Blawat
Farm Management Specialist

Ian Seddon
Swine Specialist

Normand Mabon
Farm Management Specialist

John Maltman
Swine Specialist

Figure 1 Common components of hoop structures



Estimated shelter costs for a 30 'x 102' structure

Tarp & hoops	$5,575
End doors	$648
4 Corner Panels	$435
Feeder 6 x 6 x 6	$1,415
Waterer (4-Hole)	$980
Heater Cables	$55
Concrete	$850
Railroad Ties	$350
Planking	$1,000
Labour	$3,000
Total	**$14,308**

Figure 2 Common layout of a grow finish structure